

REMARKS

By this amendment, claim 6 and Figures 5 and 6 are revised to place this application in condition for allowance. Currently, claims 6 and 14-16 are before the Examiner for consideration on their merits.

Initially, claim 6 has been revised in accordance with the Examiner's suggestion as set forth on page 2 of the Detailed Action. With this change, the references to the expressions are now in sequential order.

Figures 5 and 6 are revised and submitted in a separate Letter to the Draftsperson. These figures are revised to accurately portray the relationship of E1 and E0.

Turning now to the sole rejection, all claims are rejected under 35 U.S.C. § 102(b) as anticipated by the admitted prior art. This rejection is based on a number of reasons, one being that there is no patentability to the steps of embedding, excavating, inserting a second pipe, expanding, inserting a third pipe, embedding, expanding, etc. The Examiner also observes that the testing of the pipes in the specification revealed that some pipes met the claimed formula while other did not. From this, the Examiner concludes that a pipe meeting the claimed formula existed in the prior art. The Examiner further contends that one of skill in the art when manufacturing pipe using the known embedding process would use a pipe meeting the claimed formula, thus anticipating the claimed method. The

Examiner also assumes that the manufacturer's ultimate goal would be to manufacture a pipe with a uniform wall thickness.

Another point made in the rejection is that the formula cannot lend patentable merit to the claim since it represents natural phenomena.

Lastly, the Examiner again makes the observation that uniform pipes are known to exist and "would clearly meet the relationship presented in the claim."

Applicants contend that there are a number of flaws in the rejection of the claims that mandate its withdrawal. The traverse of the rejection is set out below under headings summarizing the invention and the main points of Applicants' arguments.

While this amendment is presented after final, it should be entered since the revision to claim 6 only responds to the suggestion made by the Examiner. Moreover, the amendment should be made since it place the application in better condition for appeal, and does not raise any new issues requiring further search or consideration.

INVENTION

The Examiner characterizes the invention as a method of processing a known pipe in a known way. This is an improper characterization of the invention, and it is leading the Examiner astray in formulating a rejection that is improper.

As previously argued, the invention is the discovery that selecting a pipe that abides by the claimed formula and processing it in the claimed manner involving the embedding, inserting, etc. step, results in unexpected improvements. By the claimed selection process, the pipes exhibit superior collapse strength for use in the claimed method.

The invention is not just a seamless pipe having a uniform wall thickness. It is much more than that and claim 6 is deserving of patent protection since the prior art clearly does not teach the invention. Besides not anticipating the invention, the prior art lacks any suggestion or teaching that would motivate one of skill in the art to arrive at the invention as found in claim 6.

APPLICANTS HAVE NOT ADMITTED TO THE INVENTION

The Examiner contends that the specification sets forth an admission that the invention is known. This is a distortion of the teachings of the specification; it does not admit that the invention is known.

As stated above, the invention set forth in the specification and claim 6 is the discovery that using seamless pipes abiding by the claimed formula in the claimed embedding process exhibits much improved collapse strength so that the embedding process is improved.

At most, the specification could be used to allege that a pipe meeting the claimed formula can be produced. However, even if this were to be true, this alone does not teach the invention as claimed.

The contention that the existence of a pipe that satisfies the claimed formula supports an anticipation rejection is plainly improper. Applicants are not claiming a pipe that satisfies the formula. Instead, Applicants are claiming to be the first to recognize that processing a pipe that meets the claimed formula results in unexpected improvements in the claimed process of embedding pipes.

While the Examiner could possibly reject a claim to the pipe itself, this is not the issue since claims drawn to the pipe itself are no longer before the Examiner for prosecution. What the Examiner cannot allege is that the mere occurrence of a pipe that could meet the claimed formula is the same as the claimed use of such a pipe in the claimed method.

In order to support a rejection under 35 U.S.C. § 102(b), all limitations of the claims must be taught in the prior art, either expressly or inherently. This is not the case here since the prior art lacks the important link of the formula to guide the selection of the pipe for the embedding process. Without this link, the rejection cannot stand.

Even, *assuming arguendo*, that a pipe that met the formula did exist, such a pipe could be used in a myriad of different applications, none of which could be even remotely related to that which is claimed. There is no

disclosure in the prior art of using such a pipe in the claimed embedding process, and the Examiner cannot use Applicants' invention as grounds to reject the claims.

Lacking a factual basis to conclude that a pipe meeting the claimed formula is used in the claimed process, the Examiner cannot maintain the rejection under 35 U.S.C. § 102(b), and at best can only assert obviousness, which is addressed below.

THE PRESENCE OF THE FORMULA CANNOT BE IGNORED WHEN EXAMINING THE CLAIMS FOR PATENTABILITY.

In the rejection, the Examiner asserts that the formula has no limiting effect on the claim since it is it akin to the recitation of a natural phenomenon. This is also an improper assessment of the claims for examination purposes.

The prohibition on natural phenomena in claims is in the context of statutory subject matter. That is, there are judicially-created exceptions wherein claims directed to nothing more than abstract ideas such as mathematical algorithms, natural phenomena, and laws of nature are not eligible for patent protection. It is clear that the judicial exception does not apply here since Applicants are claiming a method of embedding oil well pipes, which does not fall under any of the judicial exceptions listed above.

The next question to resolve is whether the Examiner can use a judicial exception doctrine to ignore a claim limitation. In essence, the

Examiner is saying that since a pipe that would meet the claimed formula could exist, e.g., a natural phenomenon, this means that the claimed formula does not have to be considered when examining the claim. The Examiner has cited no legal basis for this proposition, and without some basis for the assertion, it cannot stand. The Examiner has the initial burden of establishing that the claims are not patentable. In this instance, the Examiner's position is akin to ignoring a claim limitation in a method of processing iron ore mined from the ground. Since the iron ore is naturally occurring, the use of the ore would not receive patentable weight under the Examiner's logic. Clearly, this approach has no merit and cannot be used to ignore the claim limitation that the pipe to be expanded in the embedding process has a particular characteristic defined by the claimed formula.

It should also be noted that the invention is really about degrees of non-uniformity in pipes. Applicants submit that non-uniform wall thickness pipes in the field of oil well steel pipes are the rule, not the exception. Put another way, all oil well steel pipes have a non-uniform wall thickness. What Applicants have done is discover that by control of the selected pipes for the embedding process, the process can be drastically improved. Characterizing the issue of patentability in this case as one involving statutory subject matter is a diversion from the real issue of obviousness.

THERE IS NO BASIS TO MAKE AN OBVIOUS REJECTION

Since the anticipation rejection has been shown to be without a factual basis, the Examiner can only reject the claims under 35 U.S.C. § 103(a). To do so, the Examiner would have to assert that it would be obvious to employ a pipe abiding by the claimed formula in the claimed embedding process.

Even if it were admitted that the process of embedding the pipe by itself is known, the claim is more than just this process. It involves a selection of the pipe for the process according to certain criteria, i.e., the formula. How would one of skill in the art modify the process with the added feature of selecting a pipe for the embedding process that abides by the claimed formula?

There is no suggestion whatsoever in the art that the claimed formula could be used as a benchmark for the selection process. The process being claimed is a selection process that uses the formula as the gateway for use in the embedding process. Where is such a selection process in the prior art of embedding? There was no recognition up to now of the criticality of pipe characteristics when measured in terms of the variables of claim 6. The only place the Examiner could find such a suggestion is the specification, and this use of hindsight cannot serve as a basis to reject the claims.

THE CLAIMED METHOD PRODUCES UNEXPECTED RESULTS AND ANY ALLEGATION OF OBVIOUSNESS IS REBUTTED

Putting aside the argument that there is no reason to allege that a *prima facie* case of obviousness exists, the specification demonstrates that

the inventive process wherein the selection of the pipe to be embedded abides by the formula vastly improves the process. As shown in Figure 6, the collapse strength becomes remarkably low when $E1$ is more than 30. This argument was set forth extensively in the last response, and it is set forth below for the Examiner's convenience.

Even if the Examiner were to allege that it would be obvious to optimize the pipe size or characteristics when practicing an embedding process, such an allegation would be effectively rebutted by the evidence set forth in the specification. That is, the specification shows that when pipes that meet the claimed formula are expanded, improvements are realized. Moreover, these improvements are unexpected since they are not recognized by the prior art, and, in fact, serve as the very basis of the invention, i.e., solving the problem of pipes collapsing and/or bending during embedding and expanding processes.

As previously argued, the end result of satisfying the expression 1 of $E0 \leq 30 / (1 + 0.018\alpha)$ is an avoidance of the lowering of the collapse strength of the expanded pipe. The inventors realized that the prior art method of embedding and expanding as described on pages 2 and 3 of the instant specification caused a lowering of the collapse strength and bending of the pipe. This is caused by the wall thickness of the pipe not being uniform in cross section, and because of this, the different thicknesses of the pipe react differently during the expanding process. The thinner sections, when expanded, are subjected to a different working ratio and therefore collapse strength suffers. Also, the different thicknesses result in different expansions, and subsequently different amounts of shrinkage occur in the longitudinal direction of the pipe. The varying shrinkage can cause bends in the pipe.

By abiding by the expression 1 of claim 6, the lowering of the collapse strength is avoided. The Examiner's attention is drawn to Table 2 and Figure 6. Table 2 shows the four tested alloys and various scenarios for each alloy. For example, alloy A uses three different values for α , and this results in three different values for the expression $30 / (1 + 0.018\alpha)$. Comparing $E0$ to the expression reveals that when $E0$ is less than the expression, excellent collapse strength is realized, measured in

terms of the ratio $C1/C0$. As one example, the steel A with an expanding ratio of 10 shows a $C1/C0$ ratio of 0.98 when its $E0$ is 5.4, which is smaller than the value defined by the expression $30 / (1 + 0.018\alpha)$. In contrast, the $C1/C0$ is 0.76 when the $E0$ exceed the $30 / (1 + 0.018\alpha)$ value. In general, in tests where $E0$ was greater than the expression $30 / (1 + 0.018\alpha)$, collapse strength ratio was consistently less than 0.8 and unacceptable. In contrast, a pipe having a non-uniform wall thickness that meets the formula of claim 6 produces a ratio more than 0.8 and performs better.

The improvements in collapse strength by abiding by the expression (1) of claim 6 in light of expressions 2 and 3 of claim 6 are totally unexpected in the art. Therefore, any subsequent rejection would not only have to teach the claimed method but also, in essence, teach the invention in terms of the discovery of the importance of controlling the pipe dimension according to the claimed formula. Without such prior art, the Examiner has no choice but to withdraw the rejection of claims 6 and 14-16 under 35 U.S.C. § 102(b).

The Examiner has offered no facts to allege that the improved in collapse strength is somehow expected. In fact, there is nothing on the record about improving the embedding process, let alone any facts showing that the increase in collapse strength is expected.

Therefore, even if the Examiner would somehow insist that the invention is obvious, the unexpected results associated with the invention rebut any such contention and claim 6 is deserving of patent protection.

CLAIMS 14-16

In addressing claims 14-16, the Examiner again alludes to the fact that the composition is part of a pipe made according to an allegedly known process. This has no bearing on the issue at hand and does not change the

fact that the Examiner has not established a *prima facie* case of anticipation or obviousness against claim 6. Claims 14-16 are in condition for allowance by reason of their dependency on allowable claim 6.

SUMMARY

In light of the arguments above, it is contended that the rejection is misplaced and has to be withdrawn. The Examiner must consider the formula in claim 6 when assessing patentability. Secondly, the Examiner has no basis to conclude that the method is known in the prior art. Third, there is no basis to allege that the method is obvious, and even if there was, the invention produces unexpected results so as to rebut any allegation of obviousness.

Accordingly, the Examiner is respectfully requested to examine this application in light of this amendment and pass all pending claims onto issuance.

If the Examiner believes that another interview with Applicants' attorney would be helpful in expediting prosecution of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated August 21, 2006.

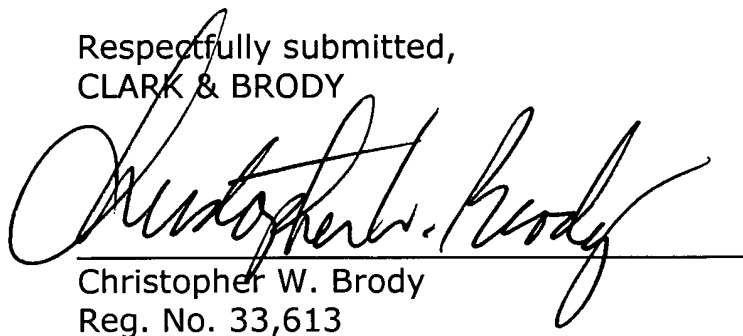
Again, reconsideration and allowance of this application is respectfully requested.

Application No.: 10/651,941

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Respectfully submitted,
CLARK & BRODY

A handwritten signature in black ink, appearing to read "Christopher W. Brody", is written over a horizontal line. The signature is fluid and cursive.

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